

REMARKS

In the Office Action dated February 12, 2007, claims 17, 23, 25, 28 and 30 were rejected under 35 U.S.C. §102(e) as being anticipated by Montgomery. Claims 18-21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Montgomery. Claims 24-27 and 29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Montgomery in view of Jesmanowicz.

These rejections are respectfully traversed for the following reasons.

As described in paragraph [0008] of the Montgomery reference, the neuron signal analysis system and method disclosed therein are for the purpose of positioning a microelectrode within tissue, such as brain tissue. For this purpose, the system employs a microelectrode that obtains electrical signals, and so-called "distribution logic" that generates a statistical distribution of these electrical signals. So-called "identification logic" then identifies whether the statistical distribution resembles a noise distribution, and a position controller controls the position of the microelectrode so that the electrode is actually sensing or detecting a nerve discharge, as opposed to noise.

As stated in paragraph [0003], this method and system are employed in the context of deep brain stimulation, wherein one or more surgically implanted electrodes are to be permanently implanted in the brain at specific positions. In order to determine these specific positions, the aforementioned microelectrode is used, with the signals obtained therefrom being analyzed in the manner described above.

As described in paragraph [0048] of the Montgomery reference, the target position at which the microelectrode is placed is very specific and limited, because

this is also intended to be the position at which the permanent electrode will be implanted in order to influence neuronal activity in a very specific manner.

Therefore, the method and system disclosed in the Montgomery reference necessarily evaluates signal data only at one specific point in the brain, and at only one time. In the original language of each of independent claims 17, 28 and 30 of the present application, it was stated that neuronal activities are analyzed in neuronal areas (plural) of a living subject from a plurality of signals obtained from a neuronal area. Applicants submit this original language was sufficient to distinguish from the teachings of the Montgomery reference, wherein the signals are obtained substantially from only a single point within the tissue, namely within the brain. Nevertheless, each of independent claims 17, 28 and 30 has been amended to make clear that the neuronal activity that is being analyzed is represented by signals respectively obtained from spatially distributed neuronal areas, the signals respectively representing neuronal activity in these different areas.

The Montgomery reference does not disclose forming a matchable coupling of such signals from different neuronal areas in the manner set forth in independent claims 17, 28 and 30. Moreover, there is no basis in the Montgomery disclosure, if signals were obtained from spatially distributed areas of the brain, rather than from the substantially punctiform site at the tip of the microelectrode, that the Montgomery system and method would even function as intended. The method and system disclosed in the Montgomery reference are adapted and specifically suited for the limited purpose described above. It is even possible that collecting signals from spatially distributed areas in the brain would, in the context of the Montgomery

system and method, be interpreted as noise, thereby giving an unwanted analysis result.

The Montgomery reference, therefore, does not disclose all of the elements of independent claims 17, 28 and 30, and therefore does not anticipate any of those claims. Claims 23 and 25 depend from claim 17, and are therefore not anticipated by the Montgomery reference for the same reasons discussed above in connection with independent claim 17.

As to the obviousness rejection of claims 18-21 based on Montgomery, as the above discussion makes clear, there is no disclosure in the Montgomery reference itself, and no reason for a person of ordinary skill in the field of biomedical signal analysis to believe, that departing from the teaching in Montgomery to obtain the signals from a specific point in the brain tissue would still allow the method and system disclosed in the Montgomery reference to function as intended. Therefore, none of claims 18-21 would have been obvious to a person of ordinary skill in the field of biomedical signal analysis based on the teachings of the Montgomery reference.

As to the rejection of claims 24-27 and 29 under 35 U.S.C. §103(a) based on the teachings of Montgomery and Jesmanowicz, the above arguments concerning modification of the Montgomery reference are equally applicable. In addition, Applicants submit that a person of ordinary skill in the field of biomedical signal analysis would not even consider combining Montgomery and Jesmanowicz, and in fact those references are physically non-combinable and even incompatible. Although both references happen to be for the general goal of analyzing neuronal activity, they do so in completely different and incompatible ways. As noted above,

the Montgomery method and system proceed by the use of microelectrodes inserted in the brain, whereas the Jesmanowicz reference is concerned with functional magnetic resonance imaging, wherein brain activity is analyzed by viewing an image, rather than by analysis of electrical signals obtained with an electrode. Moreover, it is well known to those of ordinary skill in the field of magnetic resonance imaging that, because of the extremely strong magnetic fields that are used in a magnetic resonance imaging apparatus, it is not permitted to have metallic objects in the proximity of these strong magnetic fields, because not only do they distort the magnetic resonance image, but also present a danger to the patient and attending personnel. It is inconceivable that a system such as the Montgomery reference, that necessarily requires the insertion of a microelectrode into the brain of a subject, would be considered, even conceptually, for use in the context of any form of magnetic resonance imaging.

In addition to the above-discussed claim amendments, claim 17 has been amended to set forth a tangible result, so as to be in compliance with the recently enacted guidelines for method claims. Claim 30 has been amended not only to set forth a tangible result, but also to claim a computer-readable medium encoded with a data structure, also in compliance with the recently enacted guidelines for claiming subject matter related to computer programs.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

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